

## Listing of Claims

Please amend the claims as follows:

1. [Cancelled]

2. [Currently Amended] The method of claim 34, wherein each of the ~~one or more~~ data sequences has a length of one byte.

3. [Currently Amended] The method of claim 34, wherein each of the ~~one or more~~ data sequences has a length of one bit.

4. [Currently Amended] The method of claim 34, wherein the ~~the~~ instruction received from the processor is a member of an extensible instruction set.

5. [Currently Amended] The method of claim 34, wherein each of the one or more unaligned data sequences has a length less than a length of the second aligned word.

6. [Previously Presented] The method of claim 34, further including changing a memory address pointer by an amount less than a length of the second aligned word to point to a next unaligned data sequence to be read.

7-8. [Cancelled]

9. [Withdrawn] The method of claim 35, wherein a length of each of the one or more unaligned data sequences is one byte.

10. [Withdrawn] The method of claim 35, wherein a length of each of the one or more unaligned data sequences is one bit.

11. [Withdrawn] The method of claim 35, wherein the instruction received from the processor is a member of an extensible instruction set.

12. [Withdrawn] The method of claim 35, further including flushing the load/store buffer in order to write any remaining unaligned data into the memory.

13. [Withdrawn] The method of claim 35, wherein a length of each of the one or more data sequence is less than a length of an aligned word in the memory.

14-16. [Cancelled]

17. [Currently Amended] A system comprising:

~~a load/store buffer configured to store data; and~~

a processor configured to execute one or more data sequences;

an extension adapter including a load/store buffer, the extension adapter

configured to execute GET instructions for processing data sequences, the

GET instructions comprising the steps:

initializing the load/store buffer by loading a first aligned word into the

load/store buffer from a memory;

further initializing the load/store buffer by loading a second aligned word

from the memory into the load/store buffer;

reading one or more data sequences from the load/store buffer into a register

file configured for instruction execution using an instruction received

from the processor, at least one of the one or more data sequences

being unaligned relative to the memory; and

loading additional aligned words to the load/store buffer from the memory

to replace the one or more data sequences that are read from the

load/store buffer into the register file; and

a programmable instruction set extension fabric for enabling instruction

extensions to be stored and executed.

18. [Currently Amended] The system of claim 17 in which the one or more number of data sequences read is an immediate specified number.

19. [Currently Amended] The system of claim 17 in which the one or more number of data sequences read is a specified number stored as an index in a register memory.

20. [Previously Presented] The system of claim 17 in which a first of the one or more data sequences read is located at a first memory location and the one or more data sequences comprises a specified number of data sequences stored as a first index in a register memory, wherein a subsequent data sequence following a first of the data sequences is located at a second memory location pointed to by a second index.

21. [Cancelled]

22. [Withdrawn] The system of claim 38 in which a number of the one or more unaligned data sequences written is an immediate specified number.

23. [Withdrawn] The system of claim 38 in which a number of the one or more unaligned data sequences written is a specified number stored as an index in a register memory.

24. [Currently Amended] A method of processing data, the method comprising:

- receiving a sequence of aligned data at an extension adapter, the receipt of the sequence controlled by a processor using a load/store instruction;
- receiving a user defined instruction at the extension adapter from the processor;
- loading ~~an~~ unaligned data which is a subset of the sequence of aligned data into a programmable instruction set extension fabric; and
- executing the user defined instruction using the unaligned data subset ~~as an operand.~~

25. [Currently Amended] The method of claim 24, further including stalling execution of the user defined instruction to assure availability of the unaligned data subset.

26. [Currently Amended] The method of claim 24, further including controlling the timing of the loading of the unaligned data subset as a function of instruction execution time.

27. [Currently Amended] The method of claim 24, further including operating on both aligned and unaligned data operands using the programmable instruction set extension fabric, the alignment being relative to a word size of the processor.

28. [Currently Amended] The method of claim 24, wherein loading the unaligned data subset of the sequence into the programmable instruction set extension fabric is

accomplished using an instruction configured to read data of a first size and to increment a memory address pointer by an amount different from the first size.

29. [Currently Amended] The method of claim 24, further including initializing a data pointer in order to achieve an offset between a data alignment of the processor and the unaligned data~~subset~~.

30. [Currently Amended] The method of claim 24, wherein loading unaligned data which is a subset of the sequence of aligned data ~~loading the unaligned subset of the sequence is~~ performed using a PUT instruction received from the processor.

31. [Currently Amended] A method of processing data, the method comprising:

receiving a sequence of aligned data, the aligned data being aligned relative to a memory;

receiving a user defined instruction;

loading ~~an~~ unaligned data which is a subset of the sequence of aligned data into a programmable instruction set extension fabric;

executing the user defined instruction using the unaligned data ~~subset as an~~ ~~operand~~ to create an unaligned instruction output;

receiving the unaligned instruction output;

aligning unaligned instruction output to the memory to create aligned data; and

storing the aligned data in the memory.

32. [Currently Amended] The method of claim 31, wherein receiving the sequence of aligned data is controlled by a processor using a load/store instruction, and the user defined instruction is received from the ~~same~~ processor.

33. [Currently Amended] The method of claim 31, wherein the sequence of aligned data is received from a first location within the memory and the aligned data is written to a second different location within the memory.

34. [Currently Amended] A method for processing data sequences in a computing system, the method comprising:

initializing a load/store buffer in an extension adapter by loading a first aligned word into a load/store buffer;

further initializing the load/store buffer by loading a second aligned word into the load/store buffer, alignment of the first aligned word and the second aligned word being relative to a memory accessible via a processor;

reading ~~anone or more~~ unaligned data sequence from the load/store buffer into a register file of an extension adapter for use by an instruction received from the processor, the unaligned data sequence including at least part of the second aligned word; ~~and~~

loading additional aligned words to the load/store buffer to replace the first aligned word and the second aligned word; and

executing the unaligned data sequence.

35. [Withdrawn] A method for processing data sequences in a computing system, the method comprising:

generating one or more unaligned data sequences using an instruction received from a processor;

initializing a load/store buffer by loading data to the load/store buffer,;

writing the one or more unaligned data sequence to the initialized load/store buffer; and

writing the one or more unaligned data sequences from the initialized load/store buffer to a memory, using a load/store instruction from the processor, such that the one or more unaligned data sequence becomes aligned with the memory.

36. [Withdrawn] A system for processing data sequences in a computing system, the system comprising:

means for initializing a load/store buffer by loading one or more unaligned data sequences into the load/store buffer; a length of each of the one or more unaligned data sequence being less than a length of an aligned word of a memory, the one or more unaligned data structures being unaligned relative to the memory and including output of a user defined instruction executed using data retrieved from the memory; and

means for writing the one or more unaligned data sequences to the memory, such that the written unaligned data becomes aligned to one or more word boundary of the memory.



37. [Previously Presented] The system of claim 17, wherein a length of at least one of the one or more data sequences read from the load/store buffer into the register file is less than a length of the first aligned word.

38. [Withdrawn] A system comprising:

- a load/store buffer configured to store data; and

- a processor configured to execute PUT instructions for processing data sequences in a computing system, the PUT instructions comprising:

- initializing the load/store buffer by filling the load/store buffer with one or more unaligned data sequences from a register file a length of each of the one or more unaligned data sequence being less than a length of an aligned word, the one or more unaligned data sequences being generated using part of the aligned word; and

- writing one or more unaligned data sequences from the initialized load/store buffer, such that the unaligned data sequences become aligned relative to the aligned word.